PATENT ABSTRACTS OF JAPAN

(11)Publication number : **08-258888**

(43)Date of publication of application : **08.10.1996**

(51)Int.Cl. **B65D 85/86**
B32B 27/00
B32B 27/28
H01L 21/68

(21)Application number : **07-063644**

(22)Date of filing : **23.03.1995**

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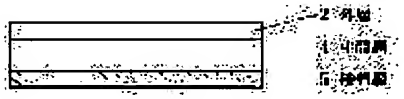
(54) COVER TAPE FOR EMBOSSING CARRIER TAPE FOR SURFACE COATING

(57)Abstract:

PURPOSE: To prevent a cover tape from being cut on peeling off the tape, by laminating a biaxially oriented film as an external layer, a specified ethylene-cr- olefin copolymer as an intermediate layer, and a specified coating film as an adhesive layer.

CONSTITUTION: The external layer 2 is either biaxially oriented polyester film or polypropylene film. The intermediate layer 4 is an ethylene-α-olefin copolymer polymerized with a metallocene catalyst, which is 100kg/cm or more in tear strength (JISK7128), 100kg-cm/cm2 or higher in tensile impact strength (ASTM D1822), 15% or lower in opaqueness (JISK7105). The adhesive layer 5 has a characteristic heat-sealing the opposite plastic carrier tape by either polyurethane or acrylic resin-heat seal lacquer type thermoplastic adhesive or the combinated material thereof. An electrically conductive fine powdered material of either tin oxide or zinc oxide is homogeneously dispersed in the adhesive.



LEGAL STATUS

[Date of request for examination]	30.03.1998
[Date of sending the examiner's decision of rejection]	
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]	
[Date of final disposal for application]	
[Patent number]	3181188
[Date of registration]	20.04.2001
[Number of appeal against examiner's decision of rejection]	

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CLAIMS

[Claim(s)]
[Claim 1] It is the covering tape which can carry out the heat seal of the receipt pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. This covering tape It is the biaxially oriented film whose outer layer is polyester or polypropylene. Tearing strength (JIS K 7128) 100 or more kg/cm, [an interlayer] **** impact strength (ASTM D 1822) is 100 kg-cm/cm2. Above, It is the ethylene-alpha olefine copolymer whose degree of overcast (JIS K 7105) is 15% or less. The polyurethane system resin in which a glue line can carry out a heat seal to the carrier tape made from plastics, Acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, butadiene system resin, or styrene resin They are the adhesives by these combination. In the adhesives Or tin oxide, One conductive impalpable powder of the zinc oxides is distributed, and the addition of conductive impalpable powder is the 10 - 1000 weight section to the base resin 100 weight section of adhesives. The surface-electrical-resistance values of a glue line are below 1013ohms / **. The bond strength of the glue line of this covering tape and the sealing surface of this carrier tape is larger than the layer adhesion reinforcement of the middle class of this covering tape, and a glue line, and the middle class of this covering tape, a glue line, and layer adhesion reinforcement are 10-130gr(s) per seal width of face of 1mm. The total light transmission of this covering tape is 70% or more, and **** impact strength is 400 kg-cm/cm2. Covering tape for embossing carrier tapes for surface mounts which it is above.
[Claim 2] It is the covering tape which can carry out the heat seal of the receipt pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. This covering tape It is the biaxially oriented film whose outer layer is polyester or polypropylene. The 2nd layer of the inside is a layer of extension of polypropylene and nylon, or either of the unstretched films. Tearing strength (JIS K 7128) 100 or more kg/cm, [the interlayer of the inside] **** impact strength (ASTM D 1822) is 100 kg-cm/cm2. Above, It is the ethylene-alpha olefine copolymer whose degree of overcast (JIS K 7105) is 15% or less. The polyurethane system resin in which a glue line can carry out a heat seal to the carrier tape made from plastics, Acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, butadiene system resin, or styrene resin They are the adhesives by these combination. In the adhesives Or tin oxide, One conductive impalpable powder of the zinc oxides is distributed, and the addition of conductive impalpable powder is the 10 - 1000 weight section to the base resin 100 weight section of adhesives. The surface-electrical-resistance values of a glue line are below 1013ohms / **. The bond strength of the glue line of this covering tape and the sealing surface of this carrier tape is larger than the layer adhesion reinforcement of the middle class of this covering tape, and a glue line, and the middle class of this covering tape, a glue line, and layer adhesion reinforcement are 10-130gr(s) per seal width of face of 1mm. The total light transmission of this covering tape is 70% or more, and **** impact strength is 400 kg-cm/cm2. Covering tape for embossing carrier tapes for surface mounts which it is above.
[Claim 3] The covering tape for embossing carrier tapes according to claim 1 or 2 for surface mounts which the resin of the middle class's ethylene-alpha olefin copolymer makes 2 chlorination zirconocene and methyl aluminoxane a catalyst, and is characterized by carrying out a polymerization.
[Claim 4] The consistency of the resin the middle class's ethylene-alpha olefine copolymer is 0.900 - 0.925 g/cm3. Covering tape for embossing carrier tapes according to claim 1, 2, or 3 for surface mounts whose ratio (polydispersed degree) of the molecular weight as which the melting point is 110 degrees C or less, and is specified by the ratio of weight-average-molecular-weight (Mw) / number average molecular weight (Mn) is

three or less.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention protects the electronic parts for chip mold surface mounts from contamination, on the occasion of storage of chip mold electronic parts, transportation, and wearing, since it mounts in an electronic-circuitry substrate, it is aligned, and it relates to the covering tape by which a heat seal is carried out to the embossing carrier tape made from plastics which formed the receipt pocket among the package objects which have the function which can be taken out.
[0002]
[Description of the Prior Art] In recent years, chip mold electronic parts for surface mounts, such as ICs and transistors, such as memory and logic, diode, and a capacitor, are packed and offered as a sample by the package object which consists of a covering tape which can carry out the heat seal of the pocket which can be contained, and by which embossing shaping was carried out to the embossing carrier tape made from plastics formed continuously, and this carrier tape according to the configuration of electronic parts. After the electronic parts of contents exfoliate the covering tape of this package object, they are taken out automatically and a surface mount is carried out to an electronic-circuitry substrate. An advancement and highly precise-ization progress every year, and, as for the mounting technology, up of productive efficiency is planned. Therefore, it is converted in the direction which rolls round a covering tape strongly so that the mounting rate of electronic parts is also accelerated rapidly, a covering tape may not cause poor exfoliation in case a covering tape is exfoliated and electronic parts are taken out corresponding to it at the time of mounting, but it can take out certainly in facility. moreover, mounting baton it is progressing to a very early rate called 0.1 or less second / baton -- the device in which a covering tape exfoliates momentarily in 0.1 or less seconds begins to be in use. For this reason, a covering tape is momentarily torn off by the very strong force, and it came to carry out the load of the bigger impulse force than before.
[0003] Meanwhile, the troubles which raise the so-called "tape piece" which a covering tape bears the stress at the time of exfoliation, and a covering tape cuts previously are occurring frequently recently, and have become the big factor on which the production yield is dropped. Although it had not become so big a trouble [be / no mounting rate / early] conventionally, only that of extent which thickens thickness of the strong outer layer of mechanical strength as the cure was performed. In the case of the covering tape in current and a commercial scene, a simple configuration called two-layer [of a substratum / sealant layer] is most, but since low-temperature seal nature with a carrier tape turns into the property of the highest priority, a sealant is comparatively flexible, and resin with low thermal resistance and mechanical strength is chosen. the resin which was excellent in tearing strength and shock resistance as a sealant -- LLDPE, VLDPE, etc. -- low -- although there was also a consistency olefin, molecular weight and presentation distribution were large, and in the low-molecular-weight region, in the odor and greasiness macromolecule field of a film, since there was inhibition of heat-sealing nature and transparency also worsened, it boiled and depended for most resistance over a tape piece on the mechanical strength of an outer layer. However, when the outer layer was thickened too much, the seal nature in low temperature worsened, or there was a limitation as the cure of only the outer layer thickness of a monolayer, a very strong seal was performed and the notch entered, the tape piece was generated too and sufficient measures were not able to be taken.
[0004]
[Problem(s) to be Solved by the Invention] That the above problems should be solved, in case this invention

exfoliates a covering tape at the time of mounting, it prevents a tape piece completely, and it offers the covering tape by which a heat seal is carried out to the embossing carrier tape made from plastics which was excellent in the mechanical strength which also spoils neither low-temperature seal nature nor transparency to coincidence.
[0005]
[Means for Solving the Problem] As an interlayer this invention to an outer layer at a biaxially oriented film and its inside Tearing resistance, Shock resistance, the ethylene-alpha olefine copolymer by which the polymerization was carried out with the metallocene catalyst excellent in transparency -- and The complex film with which total light transmission becomes [the surface-electrical-resistance value of the glue line of a configuration of having coated the glue line with the thermoplastic adhesive of the heat-sealing lacquer type which distributed conductive impalpable powder] 70% or more or less by 1013, Or the layer which was excellent in the biaxially oriented film in the outer layer, and was excellent in shock resistance at the inside, To the inside, as an interlayer Tearing resistance, shock resistance, the ethylene-alpha olefine copolymer by which the polymerization was carried out with the metallocene catalyst excellent in transparency -- and The surface-electrical-resistance value of the glue line of a configuration of having coated the glue line with the thermoplastic adhesive of the heat-sealing lacquer type which distributed conductive impalpable powder acquires knowledge that it can become the covering tape in which the complex film with which total light transmission becomes 70% or more has a good property or less by 1013. It comes to complete this invention.
[0006] This invention is the covering tape which can carry out the heat seal of the receipt pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. Namely, this covering tape An outer layer is a biaxially oriented film which is polyester or polypropylene. For tearing strength (JIS K 7128), 100 or more kg/cm and **** impact strength (ASTM D 1822) are [an interlayer] 100 kg-cm/cm2. The degree of overcast (JIS K 7105) is 15% or less above. The consistency of resin is 0.900 - 0.925 g/cm3. It is the ethylene-alpha olefine copolymer by which the polymerization was carried out with the metallocene catalyst whose ratio of the molecular weight as which the melting point is 110 degrees C or less, and is specified by the ratio of weight-average-molecular-weight (Mw) / number average molecular weight (Mn) is three or less. The polyurethane system resin in which a glue line can carry out a heat seal to the carrier tape made from plastics, Acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, butadiene system resin, or styrene resin They are the adhesives by these combination. In the adhesives Or tin oxide, One conductive impalpable powder of the zinc oxides is distributed, and the addition of conductive impalpable powder is the 10 - 1000 weight section to the base resin 100 weight section of adhesives. The surface-electrical-resistance values of a glue line are below 1013ohms / **. The bond strength of the glue line of this covering tape and the sealing surface of this carrier tape is larger than the layer adhesion reinforcement of the middle class of this covering tape, and a glue line, and the middle class of this covering tape, a glue line, and layer adhesion reinforcement are 10-130gr(s) per seal width of face of 1mm. the total light transmission of this covering tape -- 70% or more -- it is -- **** impact strength -- 400 kg-cm/cm2 the covering tape for embossing carrier tapes for surface mounts which it is above -- or It is the biaxially oriented film whose outer layer is polyester or polypropylene. The 2nd layer of the inside is a layer of extension of polypropylene and nylon, or either of the unstretched films. For tearing strength (JIS K 7128), 100 or more kg/cm and **** impact strength (ASTM D 1822) are [the inside] 100 kg-cm/cm2 as an interlayer. The degree of overcast (JIS K 7105) is 15% or less above. The consistency of resin is 0.900 - 0.925 g/cm3. It is the ethylene-alpha olefine copolymer by which the polymerization was carried out with the metallocene catalyst whose ratio of the molecular weight as which the melting point is 110 degrees C or less, and is specified by the ratio of weight-average-molecular-weight (Mw) / number average molecular weight (Mn) is three or less. The polyurethane system resin in which a glue line can carry out a heat seal to the carrier tape made from plastics, Acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, butadiene system resin, or styrene resin They are the adhesives by these combination. In the adhesives Or tin oxide, One conductive impalpable powder of the zinc oxides is distributed, and the addition of conductive impalpable powder is the 10 - 1000 weight section to the base resin 100 weight section of adhesives. The surface-electrical-resistance values of a glue line are below 1013ohms / **. The bond strength of the glue line of this covering tape and the sealing surface of this carrier tape is larger than the layer adhesion reinforcement of the middle class of this covering tape, and a glue line, and the middle class of this covering tape, a glue line, and layer adhesion reinforcement are 10-130gr(s) per seal width of face of 1mm. The total light transmission (JIS K 7105) of this covering tape is

70% or more. **** impact strength is 400 kg-cm/cm2. It is above. Also in which construct, the resin of the middle class's ethylene-alpha olefin copolymer makes 2 chlorination zirconocene and methyl aluminoxane a catalyst, and it is the covering tape for embossing carrier tapes for surface mounts characterized by carrying out a polymerization.

[0007]

[Function] When drawing drawing 1 or drawing 2 explains the component of the covering tape 1 of this invention, in drawing 1 , an outer layer 2 is either biaxially oriented film of biaxial-stretching polyester film and a biaxial-stretching polypropylene film, and the transparency whose thickness is 6-25 micrometers is the film which is well excellent in thermal resistance and has rigidity. In less than 6 micrometers, if the rigidity of an outer layer is lost and 25 micrometers is exceeded, it will be too hard and will become unstable [a seal]. For tearing strength (JIS K 7128), 100 or more kg/cm and **** impact strength (ASTM D 1822) are [an interlayer 4] 100 kg-cm/cm2. The degree of overcast (JIS K 7105) is 15% or less above. The consistency of resin is 0.900 - 0.925 g/cm3. The ratio (polydispersed degree) of the molecular weight as which the melting point is 110 degrees C or less, and is specified by the ratio of weight-average-molecular-weight (Mw) / number average molecular weight (Mn) is the ethylene-alpha olefine copolymer by which the polymerization was carried out with the metallocene catalyst which is three or less. There is a danger that less than 100 kg/cm and **** impact strength cannot respond [tearing strength] to the impulse force at the time of high-speed exfoliation enough by less than 100 kg-cm/cm, but a tape piece will be generated. Moreover, when exceeding 15%, the degree of overcast will reduce the transparency of the whole covering tape greatly, and will reduce the ease of being visible of a device. If film processing becomes [a consistency] difficult by less than three 0.900 g/cm and the ethylene-alpha olefine copolymer of middle class resin exceeds 0.930, low-temperature seal nature will worsen. Moreover, a good property is not acquired, in order for the variation of polydispersed degree in seal nature to increase or more by three, and to generate the smeariness and the odor of a film or to drop transparency. In this case, as for resin, what depends 2 chlorination zirconocene and methyl aluminoxane on the so-called metallocene catalyst by which the polymerization was carried out by considering as a catalyst is the optimal.

[0008] The active spot is called a uniform single site catalyst, and a metallocene catalyst is distinguished from a multi-site catalyst like conventional Ziegler-Natta catalyst. In the case of a multi-site catalyst, since it has the active spot of various classes, and molecular weight distribution are large and comonomer contents differ for every molecule, in response to the effect of large distribution, it surely worsens at properties, such as low-temperature heat-sealing nature and transparency. For example, although it is possible for giving tear resistance and ****-proof impact nature to LDPE at LLDPE, low-temperature seal nature and transparency will worsen. On the other hand, since a single site catalyst has the uniform active spot, its molecular weight distribution are narrow, and since the comonomer content of each molecule is almost equal, it can have good low-temperature heat-sealing nature and transparency. The side which touches each other of an interlayer 4 and an outer layer 2 performs surface treatment, such as corona treatment, plasma treatment, and sandblasting processing, if needed, raises the adhesion force, and can be stuck by dry laminate or extrusion lamination. 10 micrometers or more of 20-60-micrometer films of an interlayer's thickness are preferably good. When thinner than 10 micrometers, there is no effectiveness of tear resistance, and if thicker than 60 micrometers, heat-sealing nature will be worsened. A glue line 5 has the property which can carry out a heat seal to the carrier tape made from plastics of partner material with thermoplastic adhesive each simple substance heat-sealing lacquer type [one] of polyurethane system resin, acrylic resin, ethylene vinyl acetate system resin, polyvinyl chloride system resin, a polyester system, butadiene system resin, and styrene resin resin, or its combination.

[0009] And either conductive impalpable powder of tin oxide and a zinc oxide is distributed by homogeneity in adhesives, below at least 1013ohms / ** are required for the surface-electrical-resistance value of the glue line after film production in that case, and it is 106 still more preferably. The range of omega/** - 1010ohms / ** is good. If it becomes larger than 1013ohms / **, an electrostatic effect will get extremely bad and the target engine performance will not be obtained. Moreover, the addition is the 10 - 1000 weight section to the base resin 100 weight section of adhesives by the above-mentioned surface-electrical-resistance property, and its 100 - 300 weight section is still more preferably good. If fewer than 10 weight sections, the electrostatic prevention effectiveness will not be discovered, and if [than the 1000 weight sections] more, the dispersibility to adhesives gets remarkably bad and it is not suitable for production. Moreover, since there is an electrostatic effect semipermanently since the electrostatic processing ingredient itself has conductivity, effect does not do to

seal nature, either, in order not to start bleeding etc., but the surface-electrical-resistance value of a glue line is adjusted to below 1013ohms / **, Even if electronic parts contact this covering tape on the way of [conveyance] which enclosed electronic parts with this carrier tape on this covering tape, or in case this covering tape is exfoliated and electronic parts are taken up, it does not generate but static electricity can protect electronic parts from the static electricity failure. In addition, in order to raise an electrostatic effect further, an antistatic treatment layer or a conductive layer may be prepared in an outer layer side, i.e., the front rear face of a biaxially oriented film. Moreover, about the formation approach of heat-sealing mold adhesives, although either the melting producing-film method or the solution producing-film method may be used, solution film production is preferably desirable from the point of the dispersibility of conductive impalpable powder.

[0010] Moreover, in the seal-Peel process of a covering tape, the seal of this covering tape 1 is first carried out to both the sides of this carrier tape 6 continuously the shape of a rail with the width of face around 1mm at one of the two. (Drawing 3) If the bond strength of the glue line 5 of this covering tape 1 and the sealing surface of this carrier tape 6 is smaller than the layer adhesion reinforcement of the middle class 4 of this covering tape 1, and a glue line 5 in case this covering tape 1 is lengthened and removed from this carrier tape 6 next at the time of Peel, PIRUOFU reinforcement will correspond with the glue line 5 of this covering tape 1, and the bond strength of the sealing surface of this carrier tape 6, and Peel will be performed by interfacial peeling which is the present most general exfoliation device. On the other hand, if the bond strength of the glue line 5 of this covering tape 1 and the sealing surface of this carrier tape 6 is larger than the layer adhesion reinforcement of the interlayer 4 of this covering tape 1, and a glue line 5 like this invention the covering tape (drawing 5) after it remained in the carrier tape (drawing 4 R> 4), and only the part by which the seal was carried out among the produced glue lines 5 lengthened and was removed serves as the form where only the part by which the glue line 5 was heat sealed fell out -- it is -- Peel is performed by **** imprint exfoliation. That is, PIRUOFU reinforcement is what corresponds with the layer adhesion reinforcement of a glue line 5 and the middle class 4, the stripped plane is designed in the covering tape, and since cannot depend the layer adhesion reinforcement and it can be set as the quality of the material of a carrier tape, the PIRUOFU reinforcement which did not receive effect in the seal condition of this covering tape and this carrier tape, but was stabilized is obtained. In this case, the appearance adhesives with which the interlayer of this covering tape, a glue line, and layer adhesion reinforcement become ten to 70 gr still more preferably ten to 130 gr per seal width of face of 1mm are selected. When the Peel reinforcement is lower than 10gr(s), at the time of package object migration, a covering tape separates and there is a problem that the electronic parts which are contents are omitted. On the contrary, if higher than 130gr, in case a covering tape is exfoliated, a carrier tape will vibrate, and the phenomenon which jumps out of a receipt pocket just before electronic-parts wearing is carried out, i.e., a jumping trouble, will be caused. According to this imprint exfoliation device, as compared with the conventional interfacial peeling, the dependency of seal conditions is more low, and aging of the PIRUOFU reinforcement by storage environment can obtain the engine performance made into few purposes. Moreover, since it is constituted so that the total light transmission of a covering tape may become 80% or more preferably 70% or more, the electronic parts of the interior enclosed with the carrier tape can check with viewing or a machine. When lower than 70%, the check of inner electronic parts is difficult.

[0011] Next, in drawing 2 , the 2nd layer is extension or the unstretched film of polypropylene and nylon as 3, and it is the film which was excellent in shock resistance and tear resistance with the transparence of an outer layer 2 and its inside whose thickness is 6-50 micrometers. In less than 6 micrometers, this layer 3 runs short of tear resistance, and if 50 micrometers is exceeded, it will become unstable [seal nature]. by the way, the case where it is made an outer layer although there is a biaxial extension nylon film as a film which was excellent in transparency and was excellent in thermal resistance, and tear resistance and shock resistance -- heat sealing -- slipping nature with a trowel is bad and is not suitable for especially the sealing machine of a sliding type. Moreover, since the problem of blocking will occur if it is made an outer layer, since hygroscopicity is large, it is not suitable for an outer layer. The side which touches each other of an outer layer 2 and a layer 3 performs surface treatment, such as corona treatment, plasma treatment, and sandblasting processing, if needed, raises the adhesion force, is extruded, and can be stuck by a lamination, dry laminate, etc. Moreover, an interlayer 4 and a glue line 5 are drawing 1 and this construct.

[0012]

[Example] Although the example of this invention is shown below, this invention is not limited at all by these

examples.
The <<examples 1-7 and the example 1 of a comparison - 5>> What laminated the film which is not extended [what laminated the biaxial oriented film in the outer layer, and laminated the interlayer in the inside like the lamination shown in Table 1 and 2, the extension which was further excellent in tear resistance and shock resistance between the outer layer and the interlayer, or] was produced. The side which touches the layer excellent in an interlayer's outer layer or tear resistance, and shock resistance carried out solution film production of the glue line by the roll coater in the opposite side at 2 micrometers of thickness. In addition, the consistency of an interlayer's resin, the melting point, the tear reinforcement of a film, **** impact strength, and the degree of overcast were collectively shown in Table 1 and 2. Moreover, the class and addition of conductive impalpable powder are shown in ( ) after a glue line. An addition is thermoplastics of a glue line. It is an amount (weight section) to the 100 weight sections. It is 13.5mm about the obtained prototype. It heat sealed after the slit to width of face with the carrier tape made from polystyrene of 16mm width of face, the existence of a tape piece was judged and combined with the high-speed exfoliation machine (42000 mm/min), and the Peel reinforcement was measured (reading per second: 300 mm/min). Moreover, measurement of the surface-electrical-resistance value by the side of a glue line, the visible-ray permeability of a covering tape prototype, and **** impact strength was performed, and the result was shown in Table 3 and 4.
Heat-sealing conditions: 120 degrees C / 1kg/cm2 / 1sec, a sliding type seal, seal width of face 1mmx2 Peel conditions: 180-degree Peel, Peel speed 300 mm/min, The number of samples: 3 [0013] In addition, the used raw material is as follows.
- PE : polyethylene and PET:HORIECHIREN terephthalate which used the metallocene catalyst for the polymerization (un-extending)
- O-PET:biaxial-stretching polyethylene terephthalate, PP : polypropylene (un-extending)
- OPP:biaxial-stretching polypropylene, NY : nylon (un-extending)
- ONY:biaxial-stretching nylon and EVA:ethylene vinyl acetate -- a copolymer, a PVC:polyvinyl chloride, LDPE:low density polyethylene, and LLDPE: -- straight chain-like low density polyethylene, SnO2:tin oxide, and ZnO2: -- a zinc oxide [0014]
Table 1 Fruit ** Example 1 2 3 4 5 6 - outer layer Use resin O-PET O-PET O-PET OPP O-PET OPP Thickness (micrometer) 25 12 9 16 12 25 The - 2nd layer Use resin - ONY PP NY OPP - Thickness (micrometer) 12 15 15 15 - Interlayer Use resin PE PEPE PE PE PE thickness (micrometer) 20 30 50 15 40 30 Consistency (g/cm3) 0.9050.905 0.910 0.920 0.915 0.905 Melting point (degree C) 90 88 100105 103 93 tearing-strength (kg/cm) 124 145 120 110 130 145 **** impact strength 120 125 110 105 107 112 (kg-cm/cm2)
[0015] degree (%) of overcast butadiene system conductivity impalpable powder SnO2 SnO2 ZnO2 ZnO2 SnO2 SnO2 (weight section) 150 250 320 600 900 200 8 7 13 12 13 10 - glue line Adhesives used PVC system Acrylic PET system Polyurethane system EVA system
Table 2 An example Ratio ** Example 7 1 2 3 4 5 - outer layer Use resin O-PET O-PET OPP O-PET OPP O-PET Thickness (micrometer) 16 25 25 16 25 16 The - 2nd layer Use resin ONY - - OPP- ONY Thickness (micrometer) 12 15 12 - interlayer Use resin PE LLDPE - 5%EVA LLDPE LDPE Thickness (micrometer) 40 30 3020 40 consistencies (g/cm3) -- 0.910 0.908 0.933 0.915 0.919 Melting point (degree C) 102 120 125 125,128 Tearing strength 124 (kg/cm) 8545 105 60 **** impact strength 120 75 35 100 45 (kg-cm/cm2) Degree (%) of overcast ZnO2 SnO2 SnO2 11 20 13 18 8 - glue line Adhesives used Styrene system PET system Polyurethane system EVA system Acrylic EVA system Conductive impalpable powder SnO2 Surfactant SnO2 (weight section) 400 150 7 1200 2 1500 [0016]
Table 3 Fruit ** Example 1 2 3 4 5 6 High-speed exfoliation test tape piece Nothing Nothing Nothing Nothing Nothing Nothing Peel reinforcement Initial value 40 45 30 25 43 52 40 degree-C-90%, 30 days 55 45 28 62 38 55 60 degree C, 30 days 68 50 55 75 80 68 Exfoliation method of a glue line Imprint Imprint imprint Imprint Imprint Imprint **** impact strength 420 505 350 220 430 450 (kg-cm/cm2)
Surface-electrical-resistance value (omega/**) 109 108 106 107 105 108 Total light transmission (%) 88.0 85.2 76.3 50.7 25.8 81.0 [0017]
Table 4 An example Ratio ** Example 7 1 2 3 4 5 High-speed exfoliation test tape piece Nothing **** **** Nothing **** Nothing Peel reinforcement Initial value 25 10 45 5 35 11 40 degree-C-90%, 30 days 30 5 15 0 5 2 60 degrees C, 30 days 45 48 150 10 25 15 The exfoliation method of a glue line imprint Imprint interface Imprint Imprint Imprint **** impact strength 505 350 220 430 280 550 (kg-cm/cm2)

Surface-electrical-resistance value (omega/**) 107 1012 1014 104 1014 104 Total light transmission (%) 74.3 72.6 89.5 45.6 88.0 30.5 [0018]
[Effect of the Invention] A point without the danger that a tape piece trouble will occur although improvement in the speed of a mounting machine progresses by using the covering tape of this invention, Electrostatic processing of the glue line is carried out. Contact on electronic parts and a covering tape With or the combination of the point and heat-sealing lacquer adhesives which static electricity generated at the time of exfoliation of a covering tape is stopped, and do not affect seal nature, either, and an interlayer Since a seal's being possible at low temperature and PIRUOFU reinforcement's being set as arbitration in the range of 10-120gr per mm and PIRUOFU reinforcement are determined by the adhesion reinforcement between the layers in a covering tape, According to five points that inspection of the device not being influenced and whose transparency are contents well is easy for seal conditions with a carrier tape The problem that the dependency over the seal conditions of PIRUOFU reinforcement is large at the same time it solves the trouble of raising a tape piece at the time of the exfoliation which is the conventional trouble, And the problem of static electricity generated at the time of contact on the problem which changes with storage environment with time, and electronic parts and a covering tape, or exfoliation of a covering tape can be solved, and the stable PIRUOFU reinforcement can be obtained.

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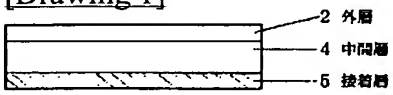
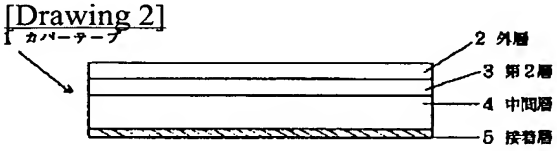
DRAWINGS

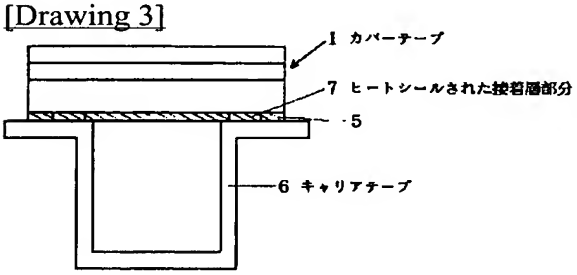
[Drawing 1]



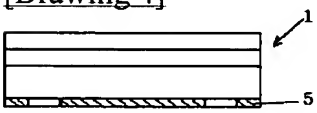
[Drawing 2]



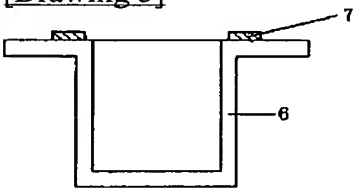
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]